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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,142	02/26/2002	Yuki Kuroiwa	219979US3X	5311
22850	7590	04/19/2004		EXAMINER
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				MAYES, MELVIN C
			ART UNIT	PAPER NUMBER
				1734

DATE MAILED: 04/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.	10/082,142	
Examiner	Art Unit	
Melvin Curtis Mayes	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 7-16 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-6 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/26/02, 4/18/03.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

(1)

Applicant's election without traverse of Claims 1-6 in Paper filed 3/24/04 is acknowledged.

***Claim Rejections - 35 USC § 103***

(2)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

(3)

Claims 1, 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of DE 23 21 401 Abstract.

The admitted prior art discloses that the ordinary melt-blow method of manufacturing a nonwoven fabric has a melt-blow die having a plurality of nozzles aligned in a direction perpendicular to the conveyor (i.e. parallel with the machine direction of the conveyor) and air reservoirs on both sides of each nozzle having highly pressurized air heated to a temperature equal to or higher than the melting point of the resin and communicating with slits to provide high-speed air streams substantially parallel with the direction of extrusion of filaments from the nozzles to attenuate the filaments (pg. 12, lines 9-26). The admitted prior art further discloses that it is considered that the best method for increasing the align-ability of filaments in the transverse direction and the mechanical strength of filaments per se is to stretch the web of filaments in the transverse direction (pg. 3, lines 23-26). The admitted prior art of record does not disclose providing at least one air stream vibrating means for cyclically changing the flowing direction of the high-speed air streams to change the movement of the filaments across the machine direction of the conveyor.

DE 23 21 401 Abstract teaches that to ensure that filaments are laid in a homogenous blanket of equal density across its whole width, curved shells are provided on each side of the

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filament and carrier streams and moved alternately from side to side to deflect the carrier streams on either side of the central line.

It would have been obvious to one of ordinary skill in the art to have modified the method of the admitted prior art for manufacturing a nonwoven fabric by providing movable curved shells on each side of the filaments and hot air streams issuing from the nozzles of the melt-blow die, as taught by DE '401, to deflect the streams of hot air and filaments to ensure that the filaments are laid in a homogenous blanket of equal density across its whole width. By providing curved shells on each side of the plurality of nozzles and which are moved alternately from side to side on each side to deflect the carrier streams on either side of the central line of the filaments and air streams, a pair of air stream vibrating means are provided which cyclically change the flowing direction of the high-speed air streams to change the movement of the filaments across the machine direction, as claimed.

(4)

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 above, and further in view of Underwood 3,220,812.

Underwood teaches that in forming and collecting fibers, a gas and fiber confining chamber or enclosure is provided to restrict and control air flow and for adjusting the width of the fibrous mass formed on the conveyor. A portion of the gases and fibers may move upwardly along the walls of the chamber or enclosure and are redirected and eventually collected on the conveyor (col. 4, lines 36-46, col. 7, lines 10-16).

It would have been obvious to one of ordinary skill in the art to have modified the method of the references as combined by providing the melt-blow die with a gas and fiber

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confining chamber or enclosure, as taught by Underwood, to restrict and control air flow and for adjusting the width of the fibrous mass formed on the conveyor. By providing the melt-blow die with a chamber or enclosure, high-speed air is circulated, as claimed, because, as taught by Underwood, a portion of the gases and fibers may move upwardly along the walls of the chamber or enclosure and are redirected and eventually collected on the conveyor.

(5)

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 3 above, and further in view of Kurihara et al. 6,132,661.

Kurihara et al. teach that melted filaments immediately after the extrusion from the nozzles are subjected to positive heating and the temperature of the surrounding atmosphere close to the nozzles is kept at an elevated temperature in order to maintain the filaments in a state to be draftable. As a means to raise the surrounding temperature, any means such as heating with a heater can be used (col. 4, lines 10-40).

It would have been obvious to one of ordinary skill in the art to have modified the method of the references as combined by providing a heater to blow hot air to the filaments and air streams issuing from the nozzles, as taught by Kurihara et al., to subject the filaments to positive heating and keep the temperature of the surrounding atmosphere close to the nozzles at an elevated temperature in order to maintain the filaments in a state to be draftable.

(6)

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 above, and further in view of either Weber et al. 3,959,421 or Kurihara et al. 6,132,661.

Weber et al. teach that in making a nonwoven fabric by melt blowing, fibers in the gas stream are rapidly quenched by spraying a liquid into the gas stream near the die tip to permit a high quality fibrous web to be formed at significantly faster production rates without leading to excessive formation of “shot” or non-fibrous polymer in the final web (col. 2, lines 31-38)

Kurihara et al. teach that in making a nonwoven fabric by a melt-blown die, an aqueous spray is used to rapidly cool the melted filaments so as to attain the appropriate stretching and higher strength and to avoid sticking of the web to the conveyor surface (col. 5, lines 54-60).

It would have been obvious to one of ordinary skill in the art to have modified the method of the references as combined by spraying a liquid on the filaments and hot air streams issuing from the nozzles, as taught by Weber et al., to rapidly quench the filaments, thus permitting a high quality fibrous web to be formed at significantly faster production rates without leading to excessive formation of “shot” or non-fibrous polymer in the final web or, as taught by Kurihara et al., to attain the appropriate stretching and higher strength and to avoid sticking of the web to the conveyor surface.

***Allowable Subject Matter***

(7)

The present specification sets forth using a rod-like body that has an elliptical cross-section and is rotated to cyclically change the flowing direction of the air stream. Claim 1 would be allowable if amended to limit the air stream vibrating means to a rod-shaped body having an elliptical cross-section and which rotates for cyclically changing the flowing direction of the high speed fluid.

***Conclusion***

(8)

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(9)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Curtis Mayes whose telephone number is 571-272-1234. The examiner can normally be reached on Mon-Fri 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Melvin Curtis Mayes  
Primary Examiner  
Art Unit 1734

MCM  
April 14, 2004